HUSSMANN®

ISF and ISM

Low and Medium Temperature Remote and Self Contained Island Merchandisers

Installation & Service Manual

IMPORTANT
Keep in store for future reference!

P/N 0515154_C
August 2012

ATTENTION

Merchandiser must operate for 24 hours before loading product!

Regularly check merchandiser temperatures.

Do not break the cold chain. Keep products in cooler before loading into merchandiser.

These merchandisers are designed for pre-chilled products only.

IMPORTANT
KEEP IN STORE FOR FUTURE REFERENCE
Quality that sets industry standards!

HUSSMANN®
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WARRANTY

REVISION HISTORY

REVISION *C* — *AUGUST 2012*

1. Revised Pan and Heater Part numbers, Section 5

REVISION *B* — *OCTOBER 2010*

1. Added self contained location drawings, page 1-2
2. Added Line Sizing, page 2-9
3. Added Koolgas and Remote Refrigeration, page 2-9
4. Added TEV drawing and adjustment, page 3-1
5. Added Cleaning Precautions, page 4-4
6. Added plan views and cross section, pages A-1, A-2

ORIGINAL ISSUE — *MARCH 2010*

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ANSI Z535.5 DEFINITIONS

• **DANGER –** Indicate[s] a hazardous situation which, if not avoided, will result in death or serious injury.

• **WARNING –** Indicate[s] a hazardous situation which, if not avoided, could result in death or serious injury.

• **CAUTION –** Indicate[s] a hazardous situation which, if not avoided, could result in minor or moderate injury.

• **NOTICE –** *Not related to personal injury –* Indicates[s] situations, which if not avoided, could result in damage to equipment.

INSTALLATION

CERTIFICATION

These merchandisers are manufactured to meet ANSI / National Sanitation Foundation (NSF®) Standard #7 requirements. Proper installation is required to maintain certification. Near the serial plate, each case carries a label identifying the type of application for which the case was certified.

ANSI/NSF-7 Type I - Display Refrigerator / Freezer
Intended for 75°F / 55% RH Ambient Application

ANSI/NSF-7 Type II - Display Refrigerator / Freezer
Intended for 80°F / 55% RH Ambient Application

ANSI/NSF-7 - Display Refrigerator
Intended for Bulk Produce

HUSSMANN PRODUCT CONTROL

The serial number and shipping date of all equipment is recorded in Hussmann's files for warranty and replacement part purposes. All correspondence pertaining to warranty or parts ordering must include the serial number of each piece of equipment involved. This is to ensure the customer is provided with the correct parts.

SHIPPING DAMAGE

All equipment should be thoroughly examined for shipping damage before and during unloading. This equipment has been carefully inspected at our factory. Any claim for loss or damage must be made to the carrier. The carrier will provide any necessary inspection reports and/or claim forms.

Apparent Loss or Damage

If there is an obvious loss or damage, it must be noted on the freight bill or express receipt and signed by the carrier's agent; otherwise, carrier may refuse claim.

Concealed Loss or Damage

When loss or damage is not apparent until after equipment is uncrated, retain all packing materials and submit a written response to the carrier for inspection within 15 days.

LOCATION

These merchandisers are designed for displaying products in air conditioned stores where temperature is maintained at or below the ANSI / NSF-7 specified level and relative humidity is maintained at or below 55%.

Recommended operating ambient temperature is between 65°F (18°C) to 80°F (26.7°C). Maximum relative humidity is 55%.

Placing refrigerated merchandisers in direct sunlight, near hot tables or near other heat sources could impair their efficiency. Like other merchandisers, these merchandisers are sensitive to air disturbances. Air currents passing around merchandisers will seriously impair their operation. Do NOT allow air conditioning, electric fans, open doors or windows, etc. to create air currents around the merchandiser.

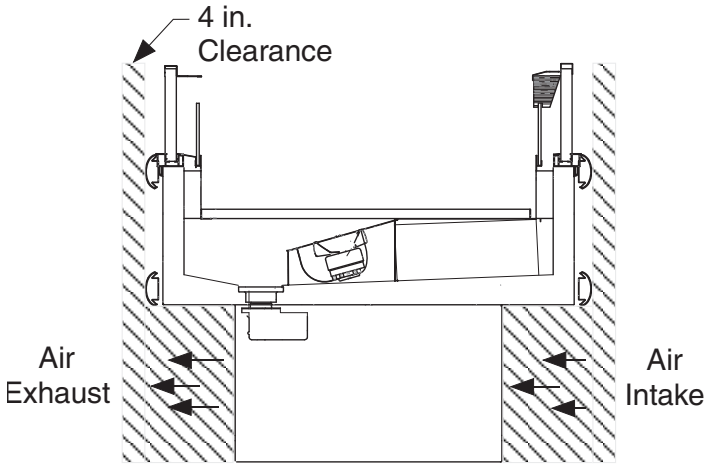
SELF CONTAINED (LOCATION)

Product should always be maintained at proper temperature. This means that from the time the product is received, through storage, preparation and display, the temperature of the product must be controlled to maximize the life of the product.

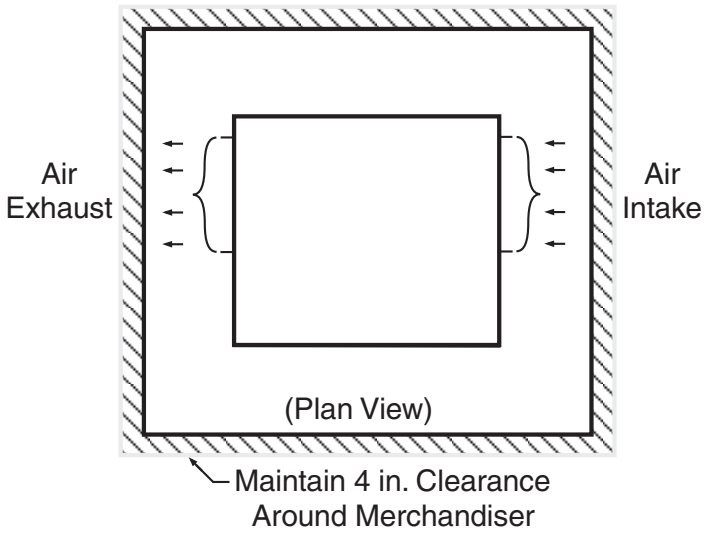
BE SURE TO POSITION SELF CONTAINED MERCHANDISERS PROPERLY.

SELF CONTAINED models have vented base panels to allow air circulation through the condensing unit.

Allow for a minimum 4 in. clearance from walls, merchandisers, and any other large objects near the merchandiser's vented base panels (for self contained models). Blocking or restricting air flow will adversely affect performance and may damage the refrigeration system.



Keep discharge and intake areas free from air currents.



MODEL DESCRIPTION

The ISFGG and ISMGG models are island, spot display merchandisers. They are available as either remote type, which require a separate condensing unit connection, or self contained. Each self contained model will have its own condensing unit, factory installed beneath the display area of the case ready for operation when electrical service is connected.

ISFGG models are designed for low temperature and dual-temperature operation: either low temperature (frozen food), or medium temperature (fresh meat, dairy and delicatessen models). ISMGG model is designed for medium temperature operation. ISFGG and ISMGG have upper glass on all four sides of the merchandiser.

⚠ CAUTION

Do not walk or put heavy objects on case.

UNLOADING

Unloading from Trailer:
Lever Bar (also known as a Mule, Johnson Bar, J-bar, Lever Dolly, or Pry Lever)

Move the merchandiser as close as possible to its permanent location and remove all packaging. Check for damage before discarding packaging. Remove all separately packed accessories such as kits and shelves.

Improper handling may cause damage to the merchandiser when unloading. To avoid damage:

1. Do not drag the merchandiser out of the trailer. Use a Johnson bar (mule).
2. Use a forklift or dolly to remove the merchandiser from the trailer.

EXTERIOR LOADING

Do NOT walk on top of merchandisers or damage to the merchandisers and serious personal injury could occur.

MERCHANDISERS ARE NOT STRUCTURALLY DESIGNED TO SUPPORT EXTERNAL LOADING such as the weight of a person. Do not place heavy objects on the merchandiser.

SHIPPING SKID

Each merchandiser is shipped on a skid to protect the merchandiser's base, and to make positioning the case easier.

Remove the top of the crate and detach walls from each other. Lift crate from the skid. Unscrew the case from the skid. The fixture can now be lifted off the crate skid. ***Lift only at base of skid!*** Remove any braces and/or skids attached (blanket wrapped merchandiser may have skids).

DO NOT LAY MERCHANDISER OVER ON THE FLOOR TO REMOVE SKID.

Once the skid is removed, the merchandiser must be lifted —NOT PUSHED— to reposition. To remove the skid, remove screws attaching skid to the merchandiser.

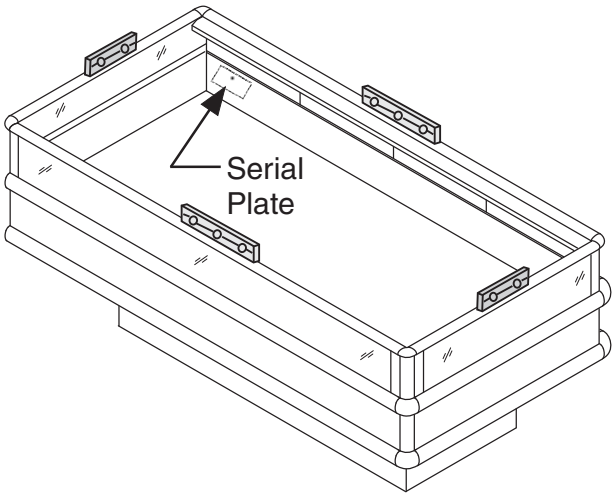
Check floor where cases are to be set to see if it is a level area. Determine the highest part of the floor.

⚠ WARNING

Do NOT remove shipping crate until the merchandiser is positioned

MERCHANDISER LEVELING

BE SURE TO POSITION MERCHANDISERS PROPERLY. Level the merchandiser by all four corners. Merchandiser(s) must be installed level to ensure proper operation of the refrigeration system, and to ensure proper drainage of defrost water.



SERIAL PLATE LOCATION

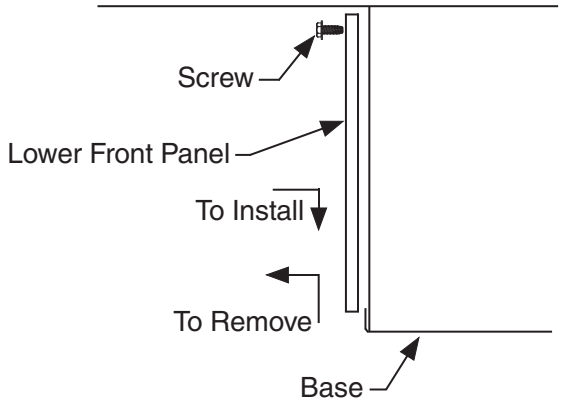
The serial plate is located on the inside of the merchandiser's display area.

REFRIGERATION UNIT ACCESS

The lower front panel may be removed by lifting the panel straight upward and over the tabs on which it is hanging. In a self contained merchandiser, two screws will have to be removed from either end of the panel. The panel is installed by reversing the above procedure.

Ensure lower front panel is flat against the floor when installed to prevent air circulation problems for self contained merchandisers.

Lower Front Panel Removal



SEALING MERCHANDISER TO FLOOR

If required by local sanitary codes, or if the customer desires, merchandisers may be sealed to the floor using a vinyl cove base trim. The size needed will depend on how much variation there is in the floor, from one end of the merchandiser to the other. Sealing of the lower front and rear panels on self contained models may hamper their removal for servicing or maintenance of the condensing unit.

NOTE: Do not allow trim to cover any intake or discharge grilles located in the lower front panel.

ELECTRICAL / REFRIGERATION

MERCHANDISER ELECTRICAL DATA

Refer to the technical data sheets and merchandiser serial plate for electrical information.

FIELD WIRING

Field wiring must be sized for component amperes stamped on the serial plate. Actual ampere draw may be less than specified.

ALWAYS CHECK THE SERIAL PLATE FOR COMPONENT AMPERES

ELECTRICAL CONNECTIONS

All wiring must be in compliance with NEC and local codes. All electrical connections ***(for remote models)*** are to be made in the electrical *Handy Box* located behind the removable base panel at the left end of the merchandiser when facing the discharge air louver.

ELECTRICAL OUTLET:

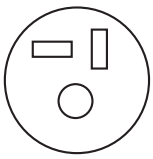
Before the merchandiser is connected to any wall circuit, use a voltmeter to check that the outlet is at 100% of the rated voltage. The wall circuit must be dedicated for the merchandiser. Failure to do so voids the warranty. Do not use an extension cord. Never plug in more than one merchandiser per electrical circuit.

- Always use a dedicated circuit with the amperage stated on the unit.
- Plug into an outlet designed for the plug.
- Do not overload the circuit
- Do not use long or thin extension cords. Never use adapters.
- If in doubt, call an electrician.

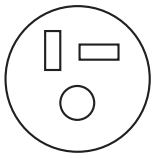
⚠ WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.



NEMA 6-20P Receptacle ISF



NEMA 5-20P Receptacle ISM

Self-contained models have factory-installed power cords attached at the electrical box.

REFRIGERATION (Self Contained Models)

Each self contained model is equipped with its own condensing unit and control panel located beneath the display area. The correct type of refrigerant will be stamped on each merchandiser's serial plate. The merchandiser refrigeration piping is leak tested. The unit is charged with refrigerant, and shipped from the factory with all service valves open.

⚠ CAUTION

Risk of Electric Shock. If cord or plug becomes damaged, replace only with a cord and plug of the same type.

⚠ WARNING

Merchandiser must be grounded. Do not remove the power supply cord ground.

REFRIGERATION (Remote Models)

Refrigeration temperature is controlled by an electronic factory-installed thermostat. The electronic thermostat controls a liquid line solenoid valve (not provided with the merchandiser). The thermostat energizes the valve as the temperature rises. A pump down system is recommended for outdoor condensing units.

LINE SIZING (Remote Models)

Refrigerant line connections are made at the right end of merchandiser (facing front) beneath the refrigerated display area. The refrigerant line connection size is 3/8 in. The suction line is 5/8 in. Refrigerant lines should be sized as shown on the refrigeration legend that is furnished for the store or according to ASHRAE guidelines.

⚠ WARNING

Refrigeration lines are under pressure. Refrigerant must be recovered before attempting any connection or repair.

For refrigerators with other than Koolgas defrost, the suction and liquid line should be clamped and/or taped together and insulated for a minimum of 30 feet from the refrigerator.

KOOLGAS (Remote Models)

If Koolgas defrost is used, the liquid line will need to be increased two sizes larger inside the merchandiser area. This is necessary to ensure even liquid drainage from all evaporators during defrost.

Refrigerators with Koolgas defrost **SHOULD NOT** have their liquid lines and suction lines in contact with each other but are to be separately insulated for a minimum of 30 ft from the refrigerator. Additional information for the balance of the refrigerant lines is recommended and required wherever condensation and dripping would be objectionable.

Oil Traps

P-traps (oil traps) must be installed at the base of all suction line vertical risers.

Pressure Drop

Keep refrigerant line runs as short as possible to avoid large pressure drops. Use a minimum number of elbows. Where elbows are required, USE LONG RADIUS ELBOWS ONLY.

⚠ CAUTION

When brazing pipes, be sure to use the insulation blanket shipped with the merchandiser to prevent damage to the metal merchandiser bottom.

COMPRESSOR
(Self Contained)

The ISF compressor is mounted on vibration springs. The compressor is banded down during shipment. **This band MUST be cut and removed to allow the compressor to float freely once placed into operation.** Failure to cut compressor shipment band may result in excessive noise or system damage.

WATER OUTLET AND WATER SEAL

The condensate water outlet is located in the center of the merchandiser. The outlet has a factory installed, external water seal.

For self contained models, this water seal drains into the condensate evaporator pan located beneath the merchandiser.

For remote models, this water seal consists of a moulded trap that requires drip piping to connect with a floor drain. The merchandiser is equipped with a $1\frac{1}{2}$ in. female National Pipe Thread (NPT) for field installation.

NOTE: All lower base panels must be in place when the refrigerator is operating. If not, airflow from the condenser will be directed over the evaporator pan and defrost water in the pan may overflow.

⚠ WARNING

Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

NOTES:

START UP / OPERATION

...ATTENTION INSTALLER

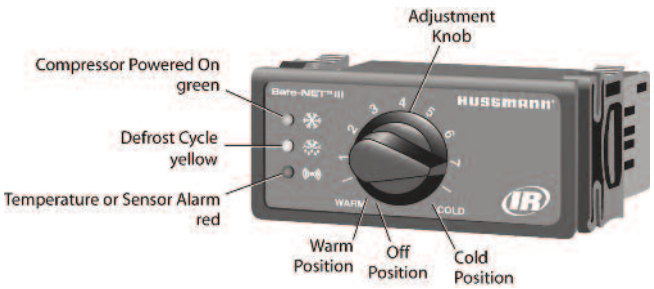
It is the contractor's responsibility to install merchandiser(s) in accordance with all local building and health codes.

Safe-NET III™ TEMPERATURE AND DEFROST CONTROLLER

SAFE-NET III™ USER INSTRUCTIONS

Your refrigerated case uses a Hussmann Safe-NET™ III temperature and defrost controller to precisely maintain the temperature and prevent frost buildup on the cooling coil. LEDs indicate when the compressor or refrigeration is on, when the case is in a defrost cycle, if the temperature is outside the desired range, or if there is a sensor failure.

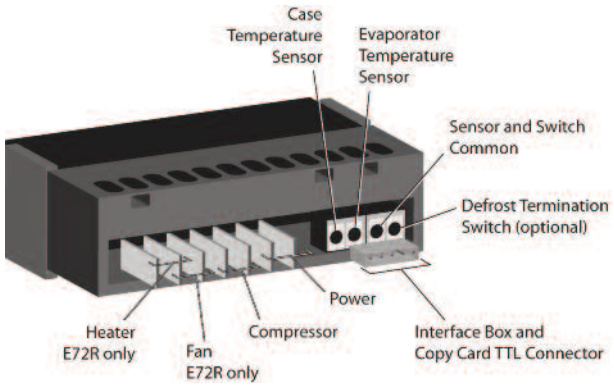
An adjustment knob allows the temperature to be set within the configured range and can power off the controller and compressor. Your controller has been custom-configured to provide the best temperature and defrost control for your chilled or frozen food.



The front of the controller has an adjustment knob and status LEDs. The back of the controller has connections for sensors and switched equipment.

The Safe-NET III controller includes the following features and connections.

• Adjustment knob:
Adjusts the temperature setpoint.
Turn adjustment knob to OFF to turn off refrigeration system. Unplug merchandiser from power before servicing the unit.



• Controller LEDs:
- Compressor Powered On LED (green): Lights while the compressor is running or the refrigeration valve is open.
- Defrost Cycle LED (yellow): Lights while the refrigeration coil is defrosting.
- Temperature or Sensor Alarm (red): Lights if the temperature is too warm or too cold. Flashes if a sensor fails.

• Rear connections:
– Case temperature sensor:
  • Typically senses the temperature of the air in the case.
    Used by the controller to determine when to power on or power off the compressor or refrigeration.
– Evaporator temperature sensor:
  • Senses the temperature of the refrigeration coil.
    Terminates a defrost cycle when refrigeration coil ice melts.
– Compressor or refrigeration relay:
  • Switches on the compressor or refrigeration valve for cooling.

⚠ WARNING

The optional evaporator fan remains ON when the adjustment knob is in the Off position.

DISPLAY

The display includes three red LEDs and two digits for temperature, defrost status, and error codes.

The three display LEDs are red, and their behavior matches the LEDs on the controller.

START-UP

1. Plug in the merchandiser.

⚠ WARNING

The OFF Position does not disconnect line voltage to the case, refrigeration unit, fan, or heater.

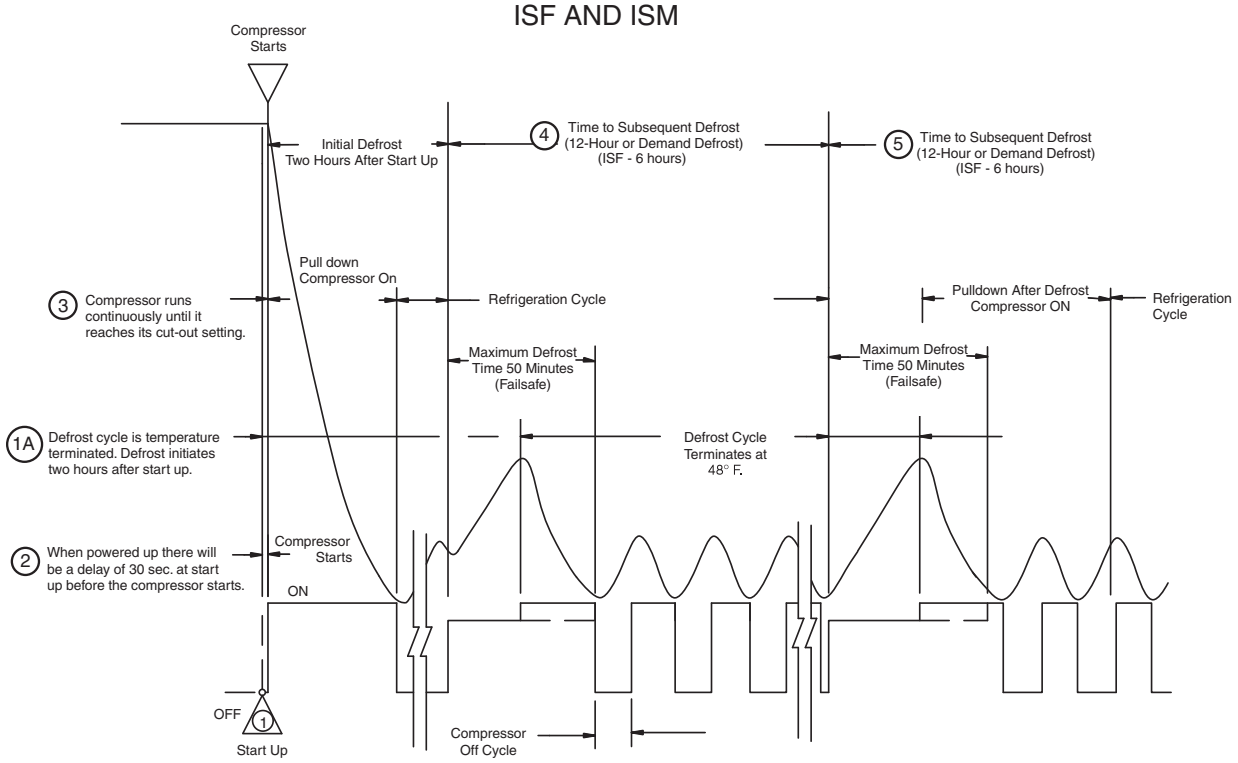
2. Wait for the self check to complete. During the self check, each LED flashes for one second, then all LEDs turn on for two seconds. If the LEDs do not flash, make sure the adjustment knob is not in the Off position.
   • After the self check, all LEDs turn off until the compressor starts. **There may be a delay before the compressor starts.** If the red Temperature or Sensor Alarm LED stays on after the self check.
   • The green Compressor Powered On LED turns on when the compressor starts.

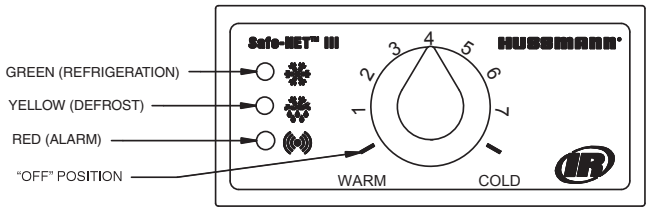
NOTE: Do NOT load product until AFTER merchandiser operates for 24 hours and reaches desired operating temperature.

⚠ WARNING

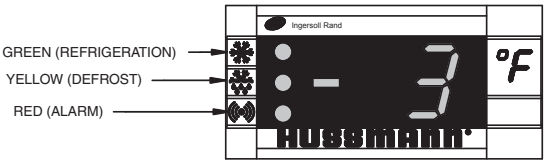
Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

SEQUENCE OF OPERATION
ISF AND ISM





Safe-Net III Controller



DISPLAY

1. Apply power to the merchandiser. Wait for the self check to complete. During the self check, each LED flashes for one second and then all LEDs turn on for two seconds. If the LEDs do not flash, make sure the adjustment knob is not in the "OFF" position.

1A. The merchandiser temperature displays at startup. The initial defrost starts two hours later. The display will show the temperature at the start of defrost. This reading will remain displayed during defrost and until it times out, even though the refrigeration mode has been initiated. (The green LED will be lit.)

2. The compressor will start after a delay; 30 seconds after the power is applied.

3. The compressor will continue to run until it reaches its cut-out temperature (Pulldown).

4. The refrigeration cycle will continue for the next subsequent scheduled 12-hours for ISM and 6 hours for ISF or demand defrost.

5. The above process will repeat (steps 3 and 4) until the power is interrupted.

6. If power stops, the process will start over at step 1, and the time to subsequent defrost will reset.

TEMPERATURE ADJUSTMENT

Rotate the adjustment knob counter clockwise for a warmer setpoint or clockwise for a colder setpoint.

- While the temperature is being adjusted, the optional display shows the setpoint (cut out value). A few seconds after the temperature is set, the display reverts to showing the sensed temperature in the merchandiser.

ALARMS AND CODES

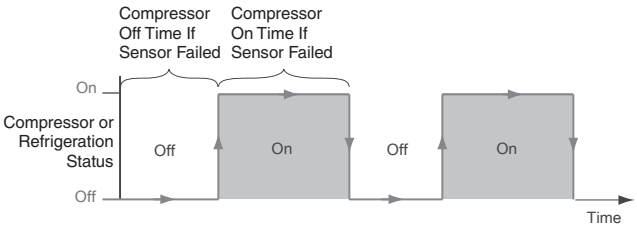
FLASHING TEMPERATURE OR SENSOR ALARM LED, E1 OR E2

If the Temperature or Sensor Alarm LED (red) on the controller and display is flashing, a temperature sensor has failed. The display shows E1 if the case sensor has failed or E2 if the evaporator sensor has failed.

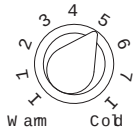
If the merchandiser sensor fails, refrigeration will run continuously. Turn off, or repeat a duty cycle of a few minutes on and a few minutes off.

DEFROST TERMINATION SWITCH

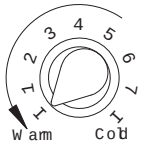
Merchandisers may use a defrost termination switch, instead of an evaporator sensor to terminate a defrost cycle. The defrost termination switch is temperature activated and senses the completion of defrost.



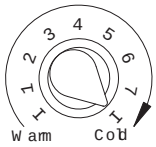
MANUAL DEFROST



1. Note location of knob setting



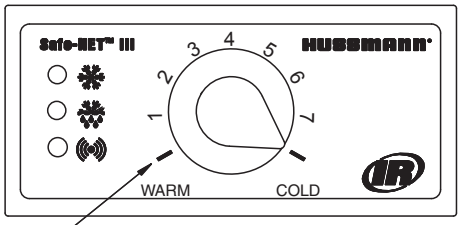
2. Rotate knob fully counterclockwise until it stops (full warm - "OFF" position)



3. After 10 seconds, but before 20 seconds, rotate knob fully clockwise until it stops (full cold position)

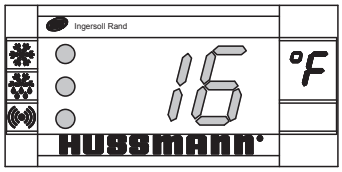
Note:
This procedure initiates a manual or forced defrost.

IMPORTANT: Return the control knob to its original setting (Step 1) once the manual defrost has been initiated.

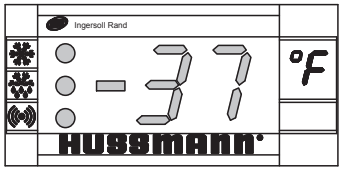


"OFF" Position

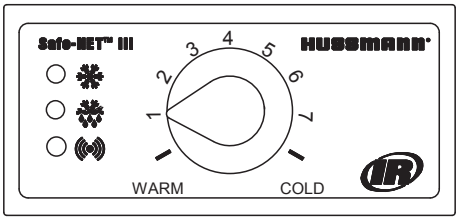
Safe-NET III Control
Set at Full Cold Position



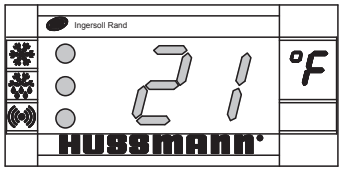
Display - at Full Cold
Model ISM



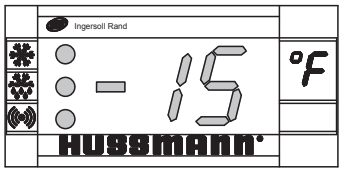
Display - at Full Cold
Models ISF & ISF Dual Temp



Safe-NET III Control
1 Position



Display - at #1 Position
Models ISM & ISF Dual Temp



Display - at #1 Position
Model ISF

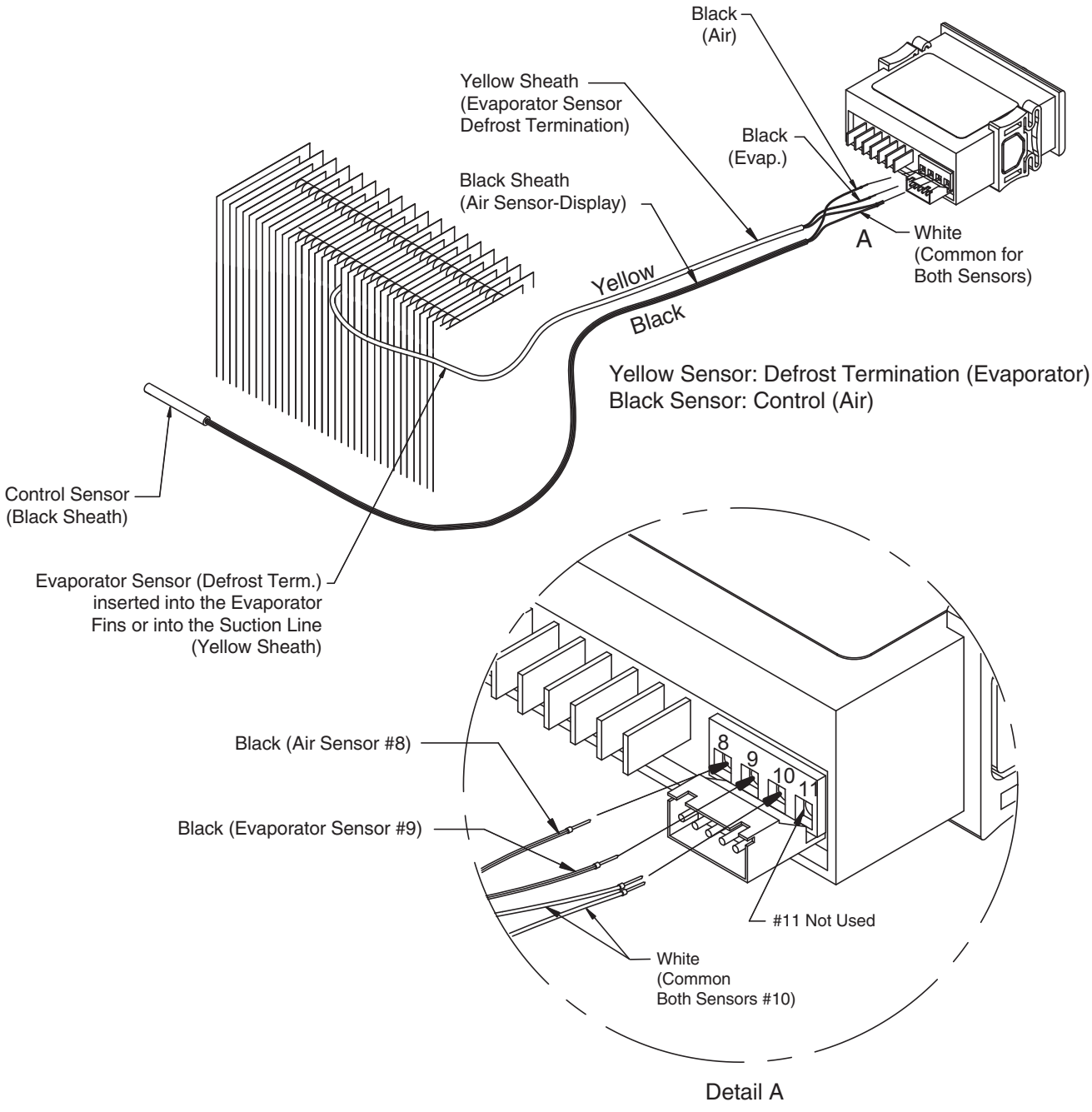
TEMPERATURE ADJUSTMENT

1. Rotate the adjustment knob counter clockwise for a hammer setpoint or clockwise for a colder setpoint.

2. While adjusting the temperature, the display shows the setpoint (cut out value). A few seconds after the temperature is set, the controller reverts to the sensed temperature in the merchandiser.

3. To verify merchandiser settings, perform the operations below. Output readings should be within one degree of the temperatures shown above.

Typical Sensor to Control Configuration



Detail A

CONTROLS and ADJUSTMENTS

Refrigeration Controls			Defrost Controls			
Model	Product Application	Discharge Air Temperature	Defrost Frequency (per day)	Type of Defrost	Temp. Termination	Failsafe Time (Minutes)
ISFGG and Dual Temp (Remote and Self Contained)	Low Temp. (Frozen Food)	-14° F	4	Electric	43° F	50
	Medium Temp. (Dairy, Deli)	24° F	4	Electric		
ISMGG (Remote and Self Contained)	Medium Temp. (Dairy, Deli)	24° F	2	Off Time	48° F	50

1. The Safe-NET III Controller controls refrigeration temperature. This is factory installed in the control panel. Adjust this control knob to maintain the discharge air temperature shown. Measure discharge air temperatures at the center of the discharge louver.

Defrosts are time initiated and temperature terminated for self contained and remote, including Koolgas models. The defrost setting is factory set as shown above.

To ensure a thorough defrost, defrost must be terminated by the temperature termination setting — not by time.

START UP

Follow the Safe-NET III start up procedures as detailed in Section 3 of this manual.

Each self contained merchandiser has its own evaporator coil and a pre-set thermostatic expansion valve (TEV). The TEV has been factory set at design conditions to provide the recommended performance.

The crankcase pressure regulating (CPR) refrigeration valve is factory set and requires no adjustment.

TEV Adjustment

Expansion valves may be adjusted to fully feed the evaporator. Before attempting to adjust valves, make sure the evaporator is clear or only lightly covered with frost, and the merchandiser is within 10°F of its expected operating temperature.

Adjust the valve as Follows:

a. Attach a probe to the suction line near the expansion valve bulb.

b. Obtain a pressure reading from the factory installed Schraeder valve. Convert the pressure reading to a saturated temperature for the refrigerant.

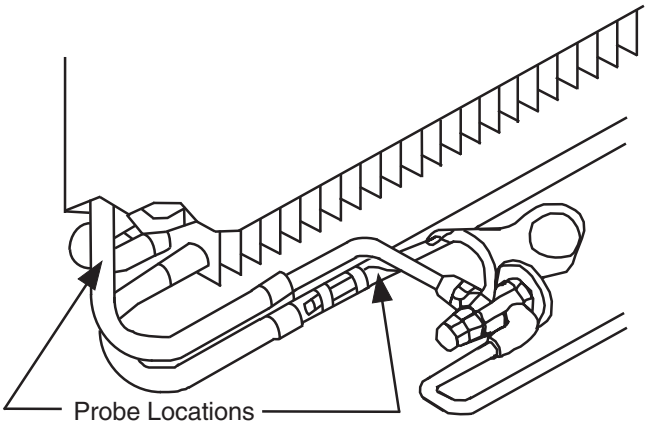
Temperature (b) minus Temperature (a) is the superheat. The valve should be adjusted so that the greatest difference between the two temperatures is 3°F to 5° F.

Make adjustments of no more than 1/2 turn of the valve stem at a time and wait for at least 15 minutes before rechecking the probe temperature and making further adjustments.

COMPRESSOR

ISF self contained merchandiser has a compressor that is banded down for shipment. **This band MUST be cut and removed to allow the compressor to float freely once placed into operation.**

NOTE: Failure to cut compressor shipment band may result in excessive noise or system damage, which is not covered by warranty.



LOAD LIMITS

Each merchandiser has a load limit decal. Shelf life of perishables will be short if load limit is violated.

AT NO TIME SHOULD MERCHANDISERS BE STOCKED BEYOND THE LOAD LIMITS INDICATED.

DO NOT BLOCK AIR LOUVERS.

LOAD LIMIT

STOCKING

Product should NOT be placed inside the merchandisers until merchandisers are at proper operating temperature.

Allow merchandiser 24 hours to operate before loading product.

Proper rotation of product during stocking is necessary to prevent product loss. Always bring the oldest product to the top and set the newest to the bottom.

AIR DISCHARGE AND RETURN FLUES MUST REMAIN OPEN AND FREE OF OBSTRUCTION AT ALL TIMES to provide proper refrigeration and air curtain performance. Do not allow product, packages, signs, etc. to block these grilles. Do not use non-approved shelving, baskets, display racks, or any accessory that could hamper air curtain performance.

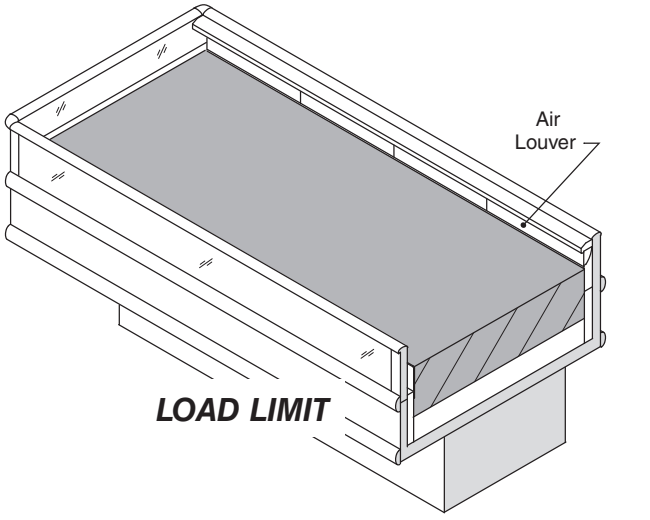
Do not allow product to be placed outside of the designated load limits in the illustration.

THERMOMETER

ISF models have a 1in.thermometer. The thermometer is located at the top, interior of the merchandiser.

⚠ WARNING

Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.



NOTES:

MAINTENANCE

CARE AND CLEANING

Long life and satisfactory performance of any equipment is dependent upon the care it receives. To ensure long life, proper sanitation and minimum maintenance costs, these merchandisers should be thoroughly cleaned, all debris removed and the interiors washed down, weekly.

Exterior Surfaces
The exterior surfaces must be cleaned with a mild detergent and warm water to protect and maintain their attractive finish. **NEVER USE ABRASIVE CLEANSERS OR SCOURING PADS.**

Interior Surfaces
The interior surfaces may be cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions with no harm to the surface. Self contained models empty into a limited capacity evaporation pan, which will overflow if excess water is used in cleaning.

Do NOT Use:

•Abrasive cleansers and scouring pads, as these will mar the finish.

•Coarse paper towels on coated glass.

•Ammonia-based cleaners on acrylic parts.

•Solvent, oil or acidic based cleaners on any interior surfaces.

•Do not use high pressure water hoses.

⚠ WARNING

Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

Do:

•Remove the product and all loose debris to avoid clogging the waste outlet.

•Store product in a refrigerated area such as a cooler. Remove only as much product as can be taken to the cooler in a timely manner.

•Disconnect electrical power before cleaning.

•Thoroughly clean all surfaces with soap and hot water. **DO NOT USE STEAM OR HIGH WATER PRESSURE HOSES TO WASH THE INTERIOR.** THESE WILL DESTROY THE MERCHANDISERS' SEALING CAUSING LEAKS AND POOR PERFORMANCE.

•Lift hinged fan plenum for cleaning. Hook chain in rear panel to secure plenum during cleaning. BE SURE TO REPOSITION THE FAN PLENUM AFTER CLEANING MERCHANDISER.

•Take care to minimize direct contact between fan motors and cleaning or rinse water.

⚠ WARNING

Do NOT allow cleaning agent or cloth to contact food product.

•Do NOT flood merchandiser with water. **NEVER INTRODUCE WATER FASTER THAN THE WASTE OUTLET CAN REMOVE IT.**

SELF CONTAINED MODELS EMPTY INTO AN EVAPORATION PAN THAT WILL OVERFLOW IF TOO MUCH WATER IS INTRODUCED DURING CLEANING.

•Allow merchandisers to dry before resuming operation.

•After cleaning is completed, turn on power to the merchandiser.

⚠ WARNING

Do NOT use HOT water on Cold glass Surfaces. This can cause the glass to shatter and could result in personal injury. Allow glass fronts, to warm before applying hot water.

REMOVING SCRATCHES FROM BUMPER

Most scratches and dings can be removed using the following procedure.

1. Use steel wool to smooth out the surface area of the bumper.
2. Clean area.
3. Apply vinyl or car wax and polish surface for a smooth glossy finish.

CLEANING UNDER FAN PLENUM

To facilitate cleaning, the fan plenum is hinged.

After cleaning be sure the plenum is properly lowered into position OR PRODUCT LOSS WILL RESULT due to improper refrigeration.

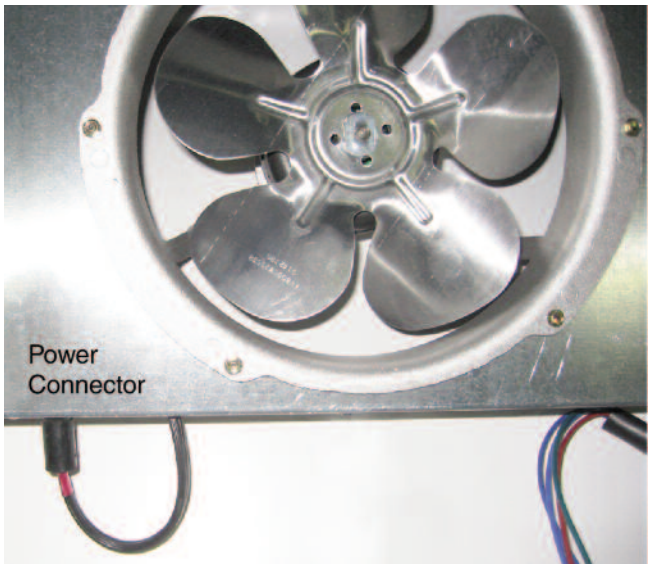
⚠ WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

⚠ WARNING

SHUT FANS OFF DURING CLEANING PROCESS.



CLEANING DISCHARGE AIR LOUVERS

Discharge air louvers should be cleaned every six months. Dirty louvers will cause merchandisers to perform poorly. The louvers may be cleaned with a vacuum cleaner. Soap and water may be used if all water is removed from the louvers cells before replacing. Be careful not to damage the louvers.

1. Using a flat object such as a screw driver, compress the honeycomb and remove it from its retainer.
2. Clean and dry the air louvers.
3. After cleaning, replace in reverse order. Damaged louvers must be replaced.

⚠ CAUTION

DO NOT FLOOD!

Use only enough water necessary to clean surface. Water must not drip down the case!

Never use ammonia based cleansers, abrasive cleansers, or scouring pads.

CLEANING STAINLESS STEEL SURFACES

Use non-abrasive cleaning materials, and always polish with grain of the steel. Use warm water or add a mild detergent to the water and apply with a cloth. Always wipe rails dry after wetting.

Use alkaline chlorinated or non-chlorine containing cleaners such as window cleaners and mild detergents. Do not use cleaners containing salts as this may cause pitting and rusting of the stainless steel finish. Do not use bleach.

CLEANING COILS

Condenser coils should be cleaned at least once per month. Additional cleaning may be needed depending on the operational environment. A dirty condenser blocks normal airflow through the coils.

Airflow blockage increases energy consumption and reduces the merchandiser's ability to maintain operating temperature.

To clean the coils, use a vacuum cleaner with a wand attachment and a soft (non-metallic) brush to remove dirt and debris. Do not bend coil fins. Always wear gloves and protective eye wear when cleaning near sharp coil fins and dust particles.

CLEANING EVAPORATION PAN
(SELF CONTAINED ONLY)

The condensate water outlet for self contained models empties into a limited capacity evaporation pan.

Debris or dirt accumulation inside the condensate evaporation pan or on the heater coil will reduce the pan's evaporation capacity and cause premature heater failure. The evaporation pan waste water will overflow and spill onto the floor if the heater is not properly operating.

Remove accumulated debris from the evaporation pan. Wipe down heater coil with a cloth and warm water. Be sure to remove any dirt, debris or liquids from the heater coil.

Water introduced during cleaning will cause the evaporation pan to overflow.

⚠ CAUTION

Evaporation Pan is Hot!

and poses risk of bodily injury – Always Wear gloves and protective eye wear when servicing. Turn off evaporation pan heater, and allow pan to cool.

PRECAUTION

CLEANING PRECAUTIONS

When Cleaning:
- Do not use high pressure water hoses
- Do not introduce water faster than waste outlet can drain
- NEVER INTRODUCE WATER ON SELF CONTAINED UNIT WITH AN EVAPORATION PAN
- NEVER USE A CLEANING OR SANITIZING SOLUTION THAT HAS OIL BASE (these will dissolve the butyl sealants) or an AMMONIA BASE (this will corrode the copper components of the merchandiser)
- TO PRESERVE THE ATTRACTIVE FINISH:
- Use a water and a mild detergent for the exterior only
- Do NOT use a chlorinated cleaner on any surface
- Do NOT use abrasives or steel wool scouring pads (these will mar the finish)

SERVICE

REPLACING FAN MOTORS AND BLADES

Should it ever be necessary to service or replace the fan motors or blades be certain that the fan blades are reinstalled correctly. **THE BLADES MUST BE INSTALLED WITH RAISED EMBOSSING (PART NUMBER ON PLASTIC BLADES) POSITIONED AS INDICATED ON THE PARTS LIST.**

For access to these fans:

1. Remove product and place in a refrigerated area. Turn off power to the merchandiser.
2. Remove bottom display pans.
3. **Disconnect fan from wiring harness.**
4. Remove fan blade.
5. Lift fan plenum and remove screws holding bottom of motor to fan basket.
6. Replace fan motor and blade.
7. Lower fan plenum.
8. Reconnect fan to wiring harness.
9. Turn on power.
10. Verify that motor is working and blade is turning in the correct direction.

⚠ WARNING

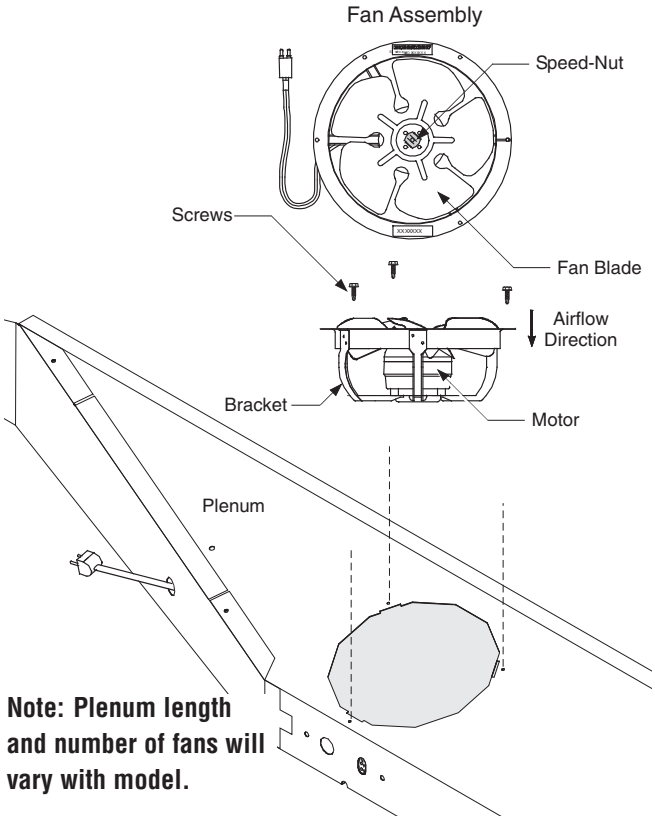
Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

⚠ WARNING

— LOCK OUT / TAG OUT —

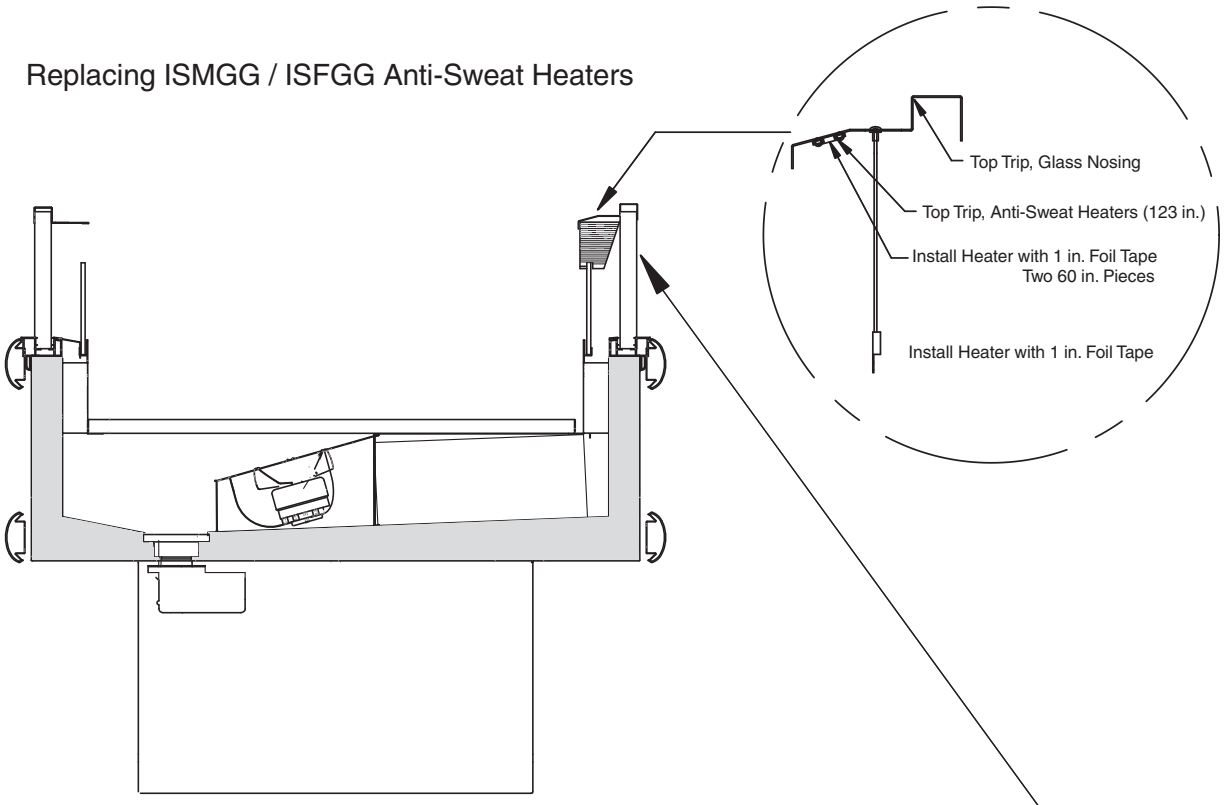
To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

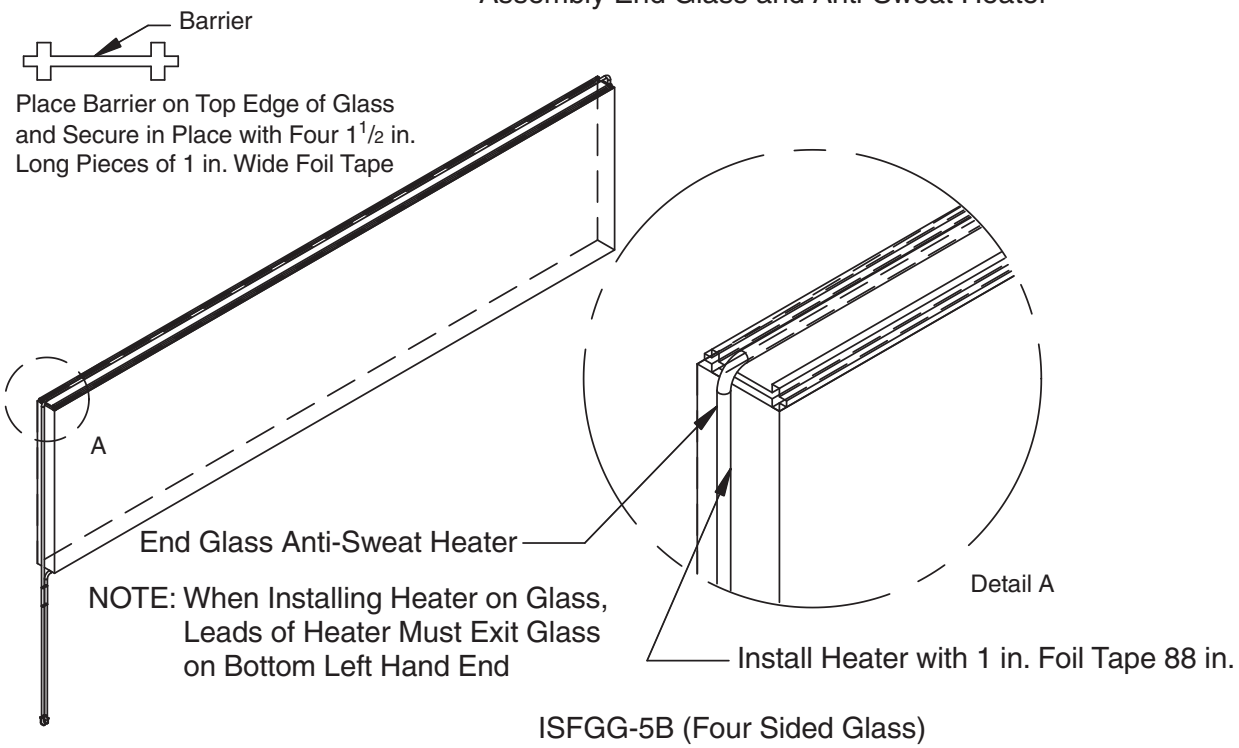
11. Close air gaps under fan plenum. Warmer air moving into refrigerated air reduces effective cooling. If the plenum does not rest against the case bottom without gaps, apply foam tape to the bottom of the fan plenum to reduce improper air movement. Use silicone sealant to close other gaps.
12. Reinstall display pans. Bring merchandiser to operating temperature before restocking.



Note: Plenum length and number of fans will vary with model.

Replacing ISMGG / ISFGG Anti-Sweat Heaters





ISFGG-5B (Four Sided Glass)

NOTE: ISMGG-5B Glass Assembly has no Anti-Sweat Heaters on Glass

REPLACING NOSING ANTI-SWEAT HEATER (Not All Models)

To replace the heater:

1. Remove product and place in a refrigerated area. Turn off power to the merchandiser.
2. Remove the interior panels from under the nosing heater to be replaced by lifting them up and out.
3. Remove interior panel support bracket .
4. Remove existing screws from sheet metal nosing panel; remove panel.
5. Remove insulation.
6. Unplug and remove existing anti-sweat heater taped to sheet metal nosing panel. In most applications anti-sweat heater plug is routed on left-hand side from front of merchandiser.
7. Tape anti-sweat heater as shown in the illustrations. Route plug to jumper harness. If price tag molding is installed, allow clearance between screws and wiring. Make sure that the edge of foil tape is seated properly. Failure to do so will cause damage to the wiring and heater.
8. Reinstall insulation, sheet metal nosing panel screws, interior panel support bracket and interior panels.
9. Turn on power to merchandiser and check for proper operation.
10. Bring merchandiser to operating temperature before restocking. Refer to illustrations on the previous page.

REPAIRING ALUMINUM COIL

The aluminum coils used in Hussmann merchandisers may be easily repaired in the field. Materials are available from local refrigeration wholesalers.

Hussmann recommends the following solders and technique:

Solders

Aladdin Welding Products Inc.
P.O. Box 7188
1300 Burton St.
Grand Rapids, MI 49507
Phone: 1-800-645-3413
Fax: 1-800-645-3414

X-Ergon
1570 E. Northgate
P.O. Box 2102
Irving, TX 75062
Phone: 1-800-527-9916

NOTE:

Hussmann Aluminum melts at	1125°F	(607°C)
Aladdin 3-in-1 rod at	732°F	(389°C)
X-Ergon Acid core at	455°F	(235°C)

Technique:

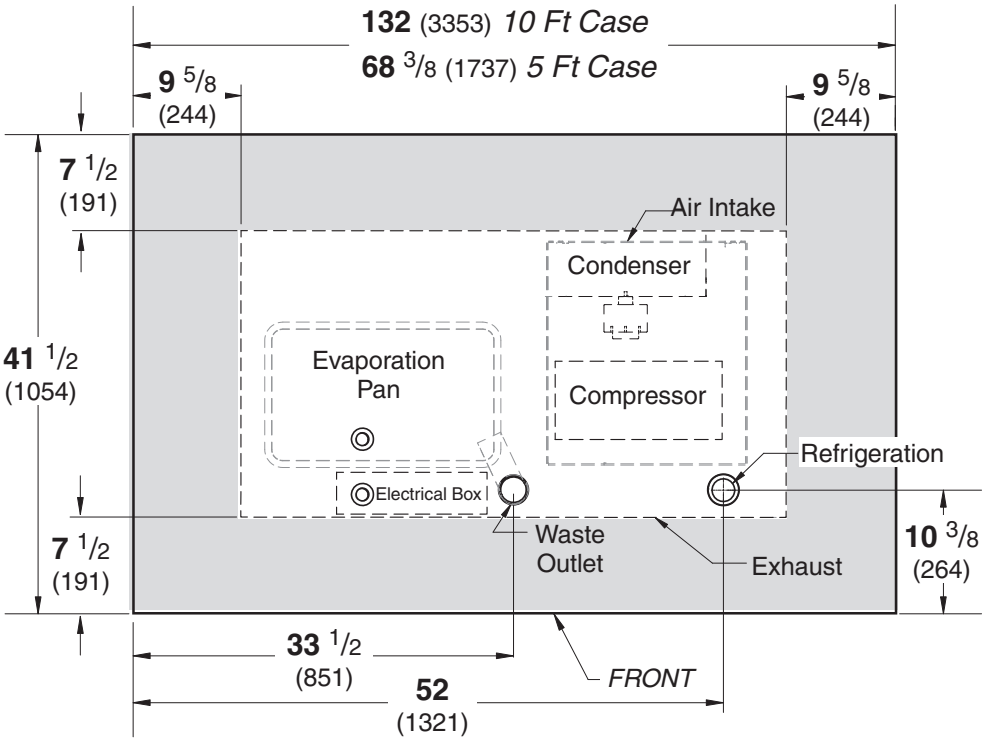
1. Locate Leak.
2. REMOVE ALL PRESSURE.
3. Brush area UNDER HEAT.
4. Use PRESTOLITE TORCH ONLY. Number 6 tip.
5. Maintain separate set of stainless steel brushes, and USE ONLY ON ALUMINUM.
6. Tin surface around area.
7. Brush tinned surface UNDER HEAT, thoroughly filling the open pores around leak.
8. Repair leak. Let aluminum melt solder, NOT the torch.
9. Don't repair for looks. Go for thickness.
10. Perform a leak check.
11. Wash with water.
12. Cover with a good flexible sealant.

NOTES:

Item Part #	Description
FAN ASSEMBLIES AND THERMOSTATS	
12W Standard	Fan Assembly
MO.4410557	Fan Assembly – 208V/230V
FB.4780649	Fan Blade
CT.4483048	Safe Net III Controller ISF
CT.4483047	Safe Net III Controller ISM
CC.4482992	Defrost Sensor (Yellow)
EP.4482541	Air Sensor (Black) SS TIP
EP.4482541	Safe Net III Display (ºF)
EP.4482541	Safe Net III Harness
HEATERS	
ISF	
HE.4851195	Defrost Heater 208/230V 800W
HE.4850151	Condensate Pan Heater 500W 208/230V
DP.4916282	Condensate Pan with Heater 500W 208/230V
HE.4851196	Anti-sweat heaters 96 in.
HE.4851193	Anti-sweat heaters 123 in.
HE.4851197	Anti-sweat heaters 140 in.
ISM	
HE.4850152	Condensate Pan 570W 120V

Item Part #	Description
CONTROL PANEL	
SW.4440546	ISF - Disconnect Switch 25Amps
SW.4440542	ISM - Disconnect Switch 20 Amps
RL.4441382	ISF - Compressor / Defrost Heater Relay
CC.4481520	ISM - Compressor Relay
SW.4441070	Pressure Control
REFRIGERATION	
CO.4613894	ISF - Condensing Unit Assembly
CO.4613893	ISM - Condensing Unit Assembly
FI.4612653	Drier
VR.4613892	Crankcase Pressure Regulator
VR.4613895	ISM - Expansion Valve
VR.461220	ISF - Expansion Valve

ISF - ISM



General

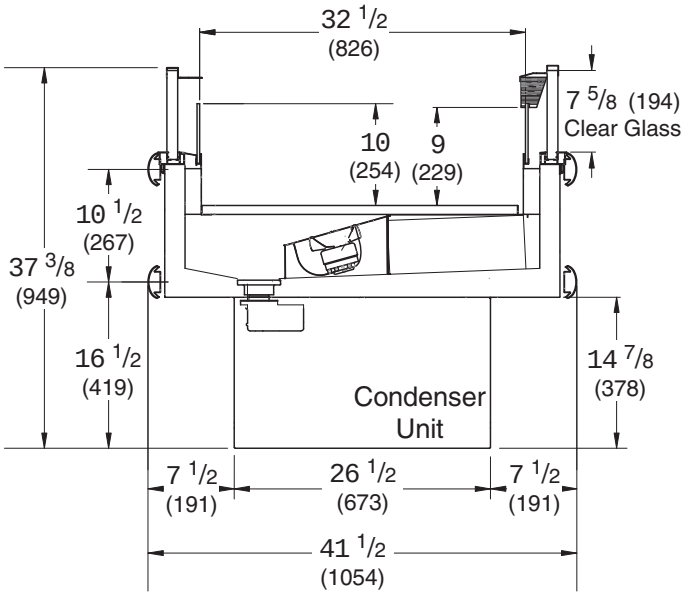
Case Length *(Note: Includes One Pair Ends)*	5ft (68 3/8) (1737)	10ft (3353)
Optional End Bumpers *(One Pair)*	2 (51)	2 (51)
Maximum O/S dimension of case back to front *(Note: Includes bumper)*	43 1/2 (1105)	87 (2210)
Width of skid rail	9 5/8 (244)	19 1/4 (488)

Waste Outlet

LH end of case *(from outside of End Assembly)* to center of waste outlet	33 1/2 (851)	67 (1702)

Dimensions shown as inches and (mm).

ISF - ISM



REFRIGERATION DATA

ISF5GG & ISM5GG

	ISF	ISM
Thermostat Setting CI/CO (°F)		
Position #1	11 / -16	
Position #7	-34 / -39	
Position #1		38 / 20
Position #7		35 / 15
ISF Dual Temperature Operation		
Position #1	38 / 20	
Position #7	-34 / -39	
Condensing Unit (hp)	1	0.5
Condensing Unit Capacity (Btu/hr at std. rating conditions)	4280	2660

DEFROST DATA

	ISF	ISM
Frequency (hr)	6	12
OFFTIME **Failsafe (minutes)**	50	50
Defrost Termination Temperature °F	43	48

PHYSICAL DATA

Refrigerant Charge		
ISF	48 oz	1.36 kg
ISM	30 oz	.85 kg

Note: This data is based on store temperature and humidity that does not exceed 80°F and 55% R.H. unless otherwise stated. Schedule defrost at night while lights are off.

Electrical Data

Note: These are rated values for individual components and should not be added together to determine total merchandiser electrical load.

	ISF-5	ISM-5
Number of Fans – 4W	**1**	**1**

	Amperes		Watts	
	ISF-5	**ISM-5**	**ISF-5**	**ISM-5**
Evaporator Fans				
230V 60Hz Standard	0.14		16	
115V 60Hz Standard		0.14		16
Condensate Pan Heaters (208V)	2.40		500	
Condensate Pan Heaters (120V)		4.75		570

Condensing Unit (208/230V, 1Ph, 60Hz) Standard		
Minimum Circuit Ampacity - ISF	15.7	
Minimum Circuit Ampacity - ISM	15.9	
Compressor LRA	51.0	43.0
Compressor RLA	11.0	9.0

Product Data

ISF/ISM-5GG

AHRI Total Display Area [1] **(*Sq Ft/Case*)** 16.92 ft^2 /case (1.57 m^2 /case)

Computed using AHRI 1200 standard methodology:
Total Display Area, ft^2 [m^2] / Unit of Length, ft [m]

	Nominal HP	Refrigerant Type	Volts	Run Amps	Nema Plugs	Fuse Amps	Hz/Ph
ISFGG-5D/G	1	R404a	208/230	15.7	6-20P	20	60/1
ISFGG-10 D/G*	1HP x 2	R404a	208/230	15.7 x 2	6-20P 20 x 2	20 x 2	60/1
ISFGG-5R	—	R404a	115	14.3	Hard Wired**	20	60/1
ISFGG-10R*	—	R404a	115	14.3 x 2	Hard Wired**	20 x 2	60/1
ISMGG-5B	1/2	R404a	115	15.9	5-20P	20	60/1
ISMGG-10B*	1/2 HP x 2	R404a	115	15.9 x 2	5-20P x 2	20 x 2	60/1
ISMGG-5R	—	R404a	115	0.7	Hard Wired**	15	60/1
ISMGG-10R*	—	R404a	115	0.7 x 2	Hard Wired**	15	60/1

* All 10 ft. models have two separated refrigeration systems and the self-contained models have 2 separated power cords.

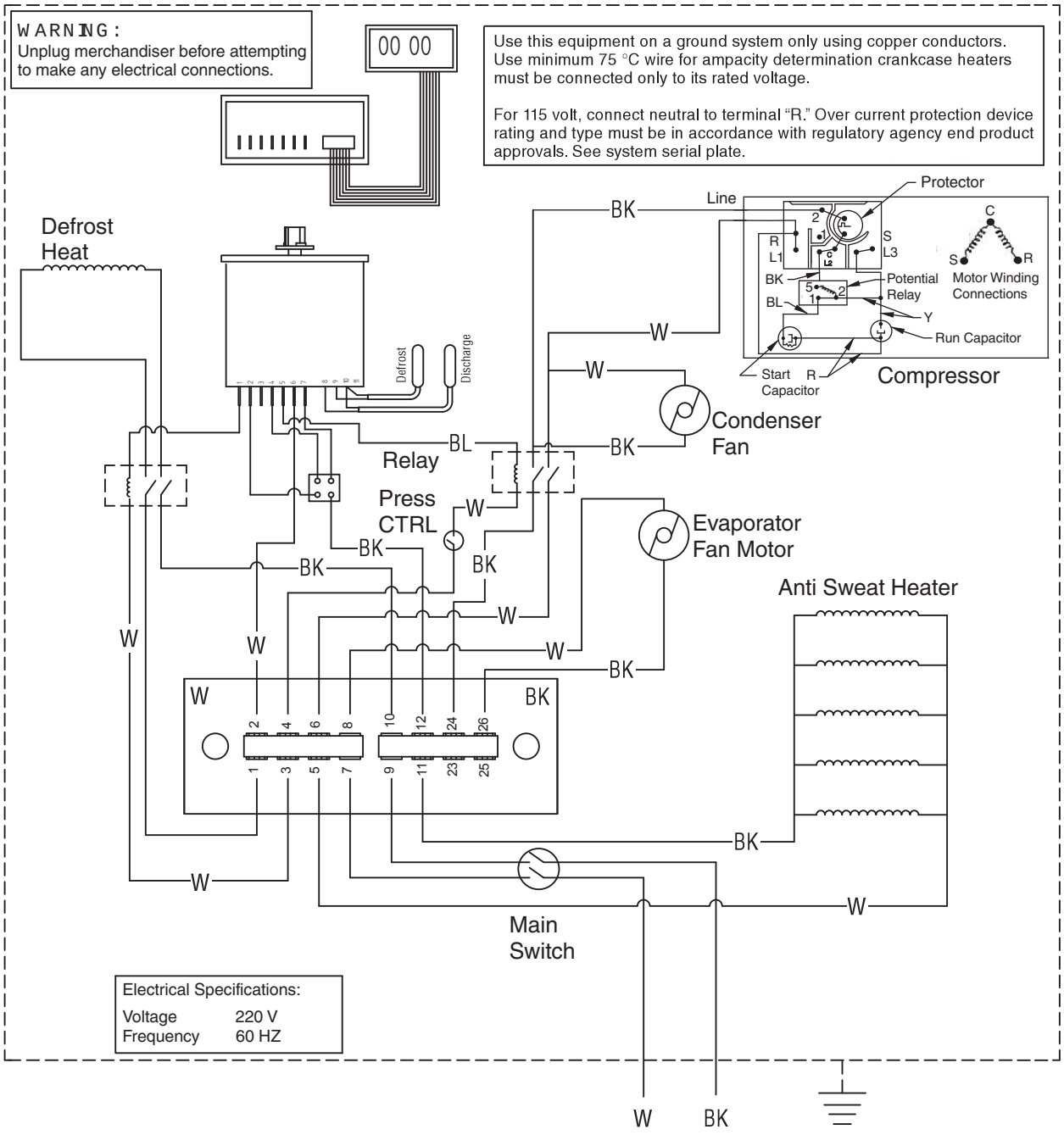
** Requires field wiring.

ESTIMATED SHIPPING WEIGHT [2]

Case			
	ISF-5	***ISM-5***	***End***
	(Self Contained)	*(Self Contained)*	
	670 lb *(304 kg)*	**725 lb** *(329 kg)*	Included
	(Remote)	*(Remote)*	
	610 lb *(277 kg)*	**621 lb** *(282 kg)*	Included
	ISF-10	***ISM-10***	***End***
	(Self Contained)	*(Self Contained)*	
	1340 lb *(609 kg)*	**1450 lb** *(658 kg)*	Included
	(Remote)	*(Remote)*	
	1220 lb *(553 kg)*	**1242 lb** *(563 kg)*	Included

[2] Actual weights will vary according to optional kits included.

ISF5GG — Self Contained



WARNING

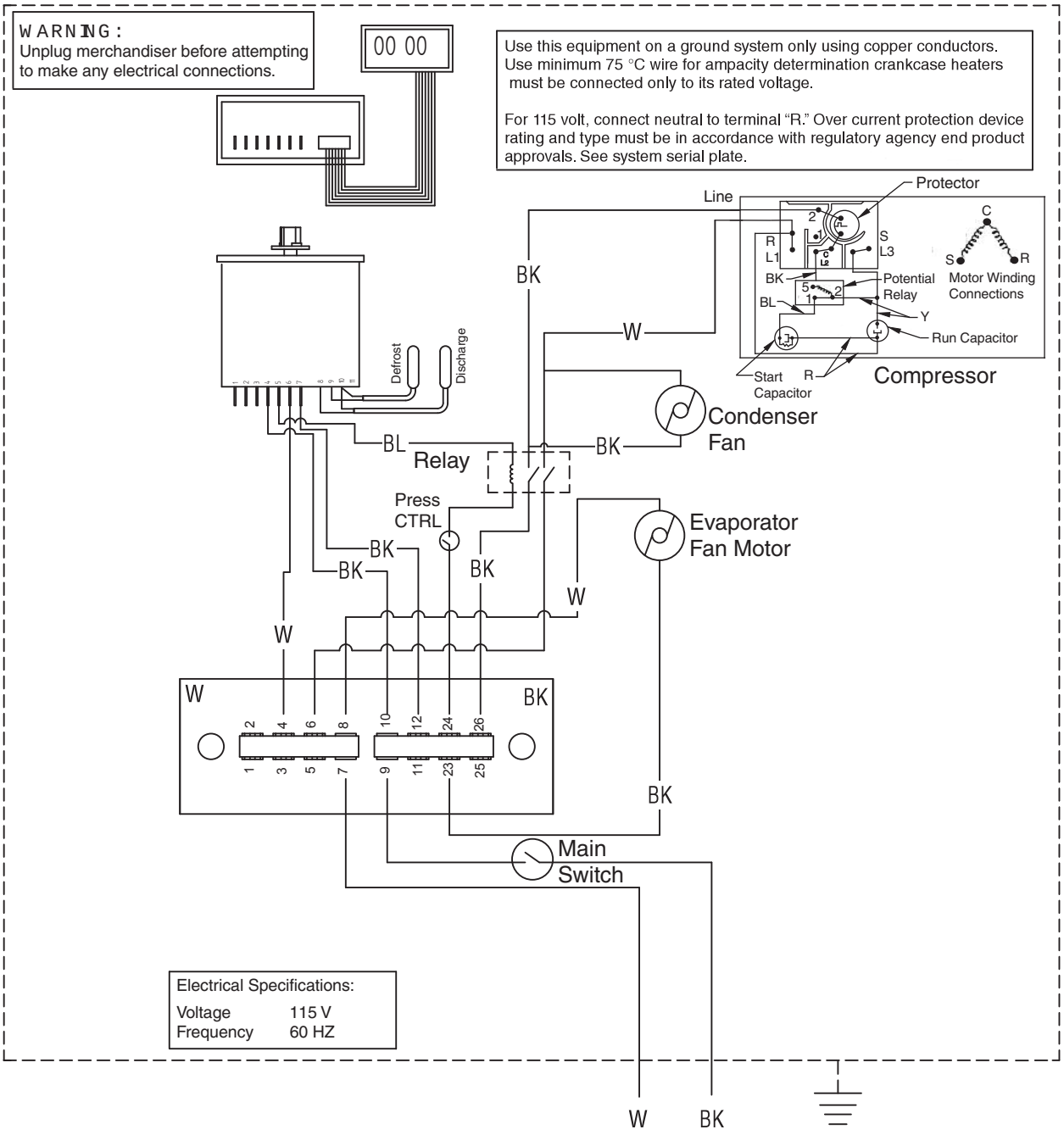
All components must have mechanical ground, and the merchandiser must be grounded.

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS

R = Red Y = Yellow G = Green BL = Blue BK = Black W = White

● = **120V POWER** ○ = **120V NEUTRAL** ⏚ = **FIELD GROUND** ⏦ = **CASE GROUND**

ISM5GG — Self Contained



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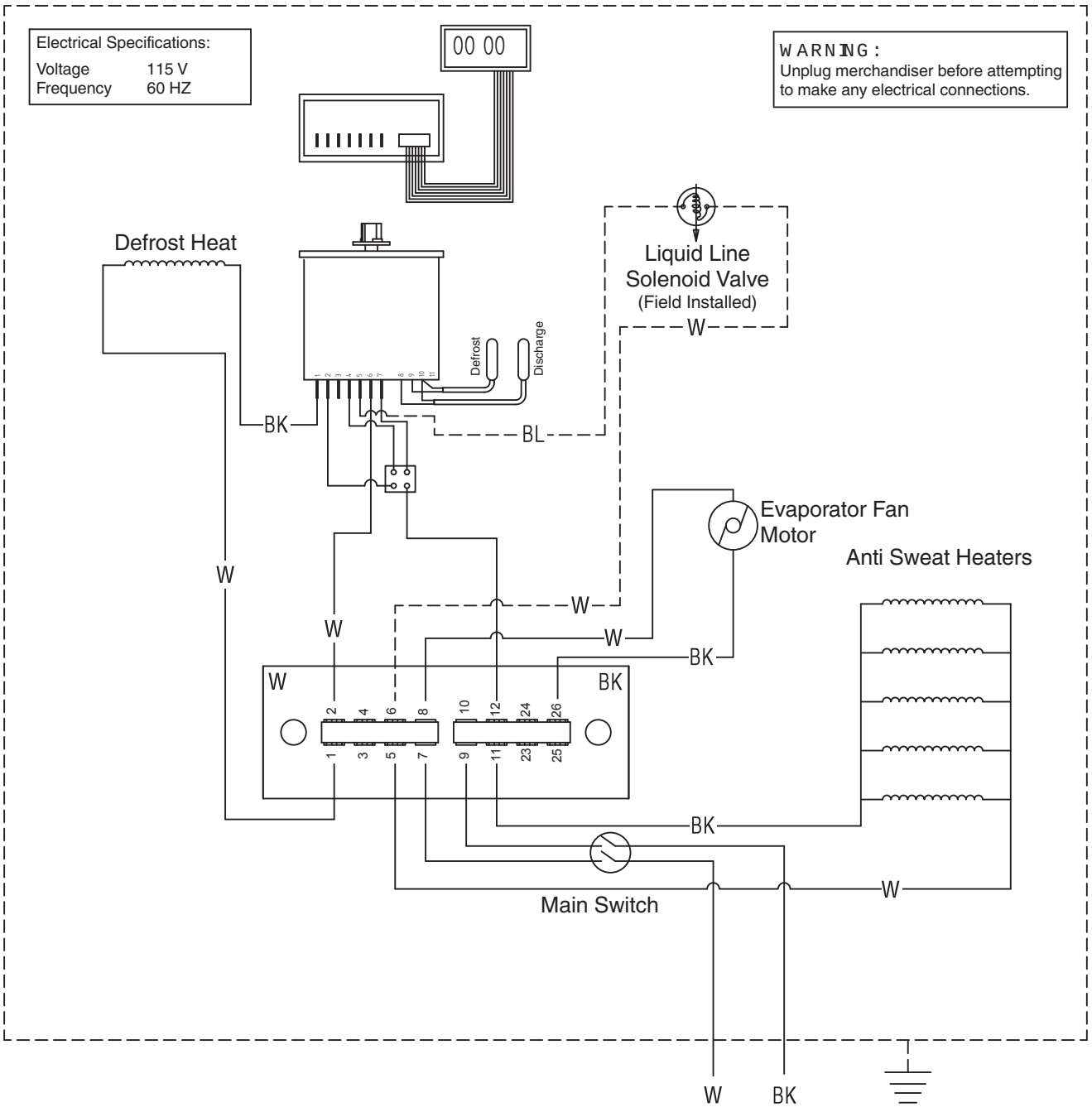
ISF5GG — Remote



WARNING

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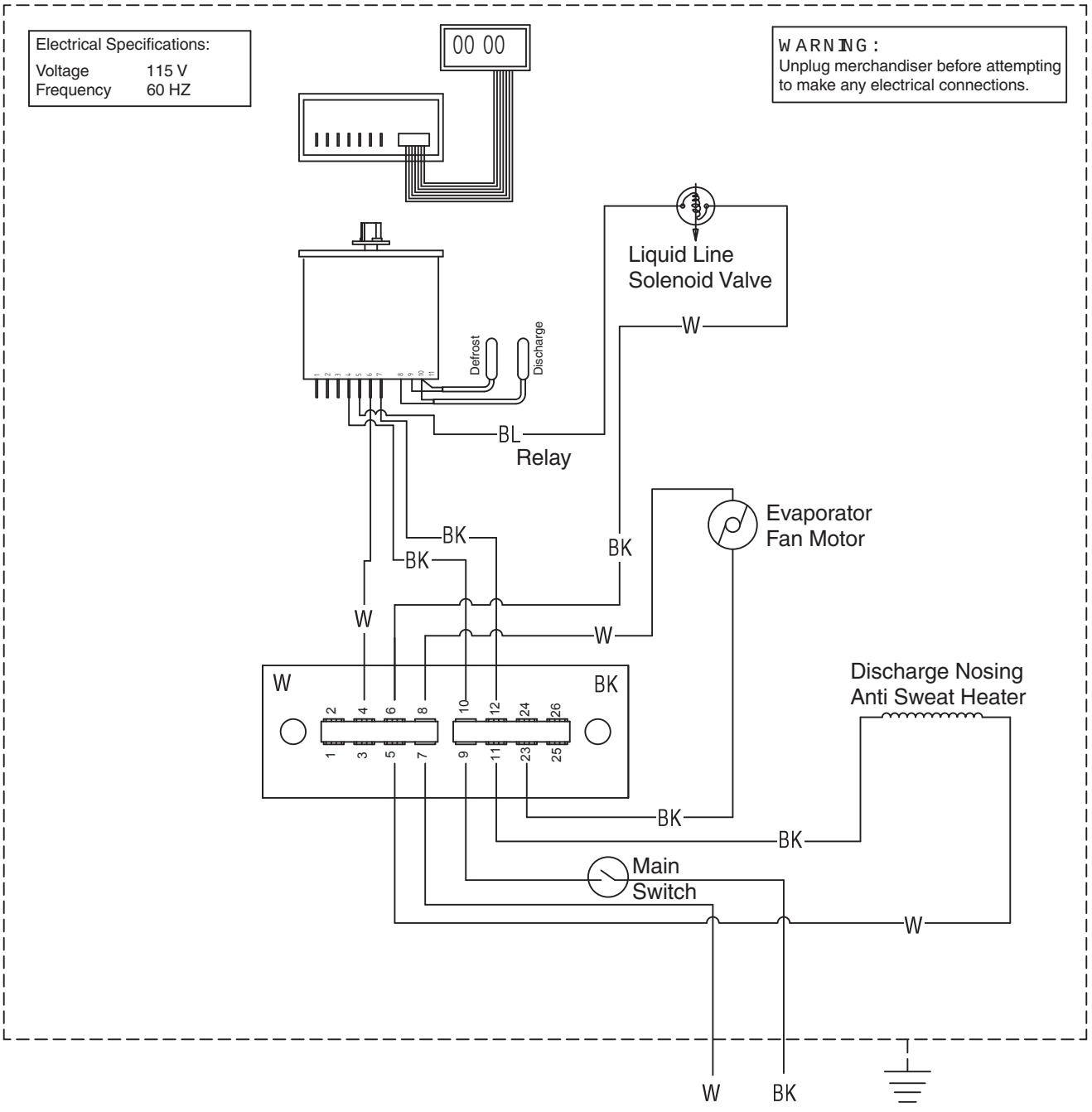
CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS

R = Red Y = Yellow G = Green BL = Blue BK = Black W = White

● = 120V POWER ○ = 120V NEUTRAL ⏚ = FIELD GROUND ⏦ = CASE GROUND

ISM5GG — Remote



WARNING

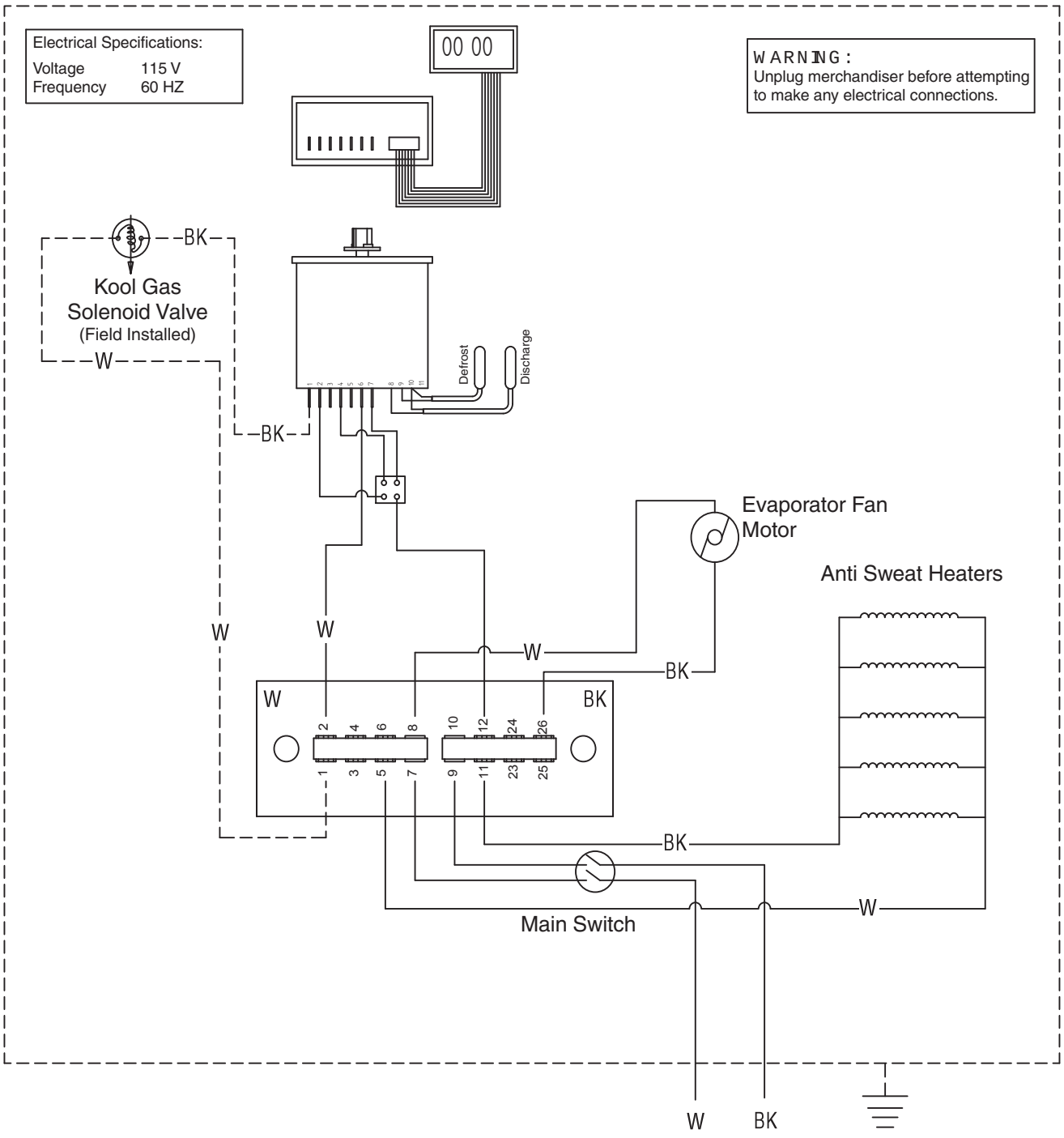
All components must have mechanical ground, and the merchandiser must be grounded.

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS

R = Red Y = Yellow G = Green BL = Blue BK = Black W = White

● = 120V POWER ○ = 120V NEUTRAL ⏚ = FIELD GROUND = CASE GROUND

ISF5GG — Remote with Koolgas



WARNING

All components must have mechanical ground, and the merchandiser must be grounded.

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS

R = Red Y = Yellow G = Green BL = Blue BK = Black W = White

● = 120V POWER ○ = 120V NEUTRAL ⏚ = FIELD GROUND = CASE GROUND

HUSSMANN®

To obtain warranty information
or other support, contact your
Hussmann representative.
Please include the model and
serial number of the product.

U.S. & Canada 1-800-922-1919 • Mexico 1-800-522-1900
www.hussmann.com

Hussmann Corporation, Corporate Headquarters: Bridgeton, Missouri, U.S.A. 63044-2483 01 July 2008

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